

AD-A143 363

NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS
PAMECHA POND DAM (CT.) (U) CORPS OF ENGINEERS WALTHAM
MA NEW ENGLAND DIV JUL 80

1/1

UNCLASSIFIED

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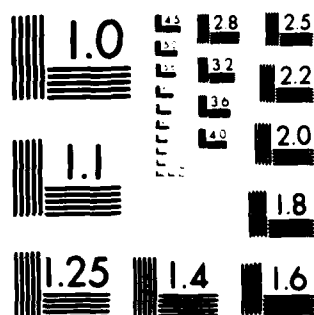
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FORMED

DATE



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
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NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DEPT. OF THE ARMY, CORPS OF ENGINEERS NEW ENGLAND DIVISION, NEDED 424 TRAPELO ROAD, WALTHAM, MA. 02254		12. REPORT DATE July 1980
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) DAMS, INSPECTION, DAM SAFETY, Middletown, Conn. Pameacha Pond Dam		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The dam is a 10.5 ft. high stone masonry gravity structure. It is approx. 83 ft. long, consisting primarily of a masonry spillway section with a stonetraining wall to the right and a tiered stone training wall to the left. The project is in poor condition. There is erosion of the channel bank across the stream from the spillway. The low-level outlet is not operable. There is seepage from the downstream face of the masonry spillway especially near the right end.		

AD-A143 363

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MIDDLEBURY, CONNECTICUT

PAMEACHA POND DAM
CT-00145

Accession For		
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Unannounced	<input type="checkbox"/>	
Justification		
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Distribution/		
Accession Codes		
Full and/or		
Dist	Special	
A-1		

NATIONAL DAM INSPECTION PROGRAM
CORPS OF ENGINEERS

84 07 23 049

INSPECTION REPORT

PAMEACHA POND DAM

The dam is a 10.5 foot high stone masonry gravity structure. It is approximately 83 feet long, consisting primarily of a masonry spillway section with a stone training wall to the right and a tiered stone training wall to the left. It appears that Pameacha Avenue to the left of the spillway, is on what was formerly a dam embankment. However, filling on the downstream side of Pameacha Avenue for a parking lot, has obscured the original configuration of the project. There is an abandoned low-level intake structure on the upstream side of Pameacha Avenue.

The spillway is constructed of uncut to extremely rough cut, dry laid stone masonry with an 18" concrete cap. The downstream face of the spillway is stepped and the approach channel is shallow with a silty bottom. For a length of approximately 19 feet near its left end, the spillway crest has been lowered by about 2 feet. There is no concrete cap and the crest elevation is very irregular in this area.

At the toe of the spillway, the stream channel turns to the left. Across the stream from the spillway is a steep, heavily vegetated channel bank and a back yard at the top of the bank. There is a sewer manhole in the downstream channel near the left end of the spillway where the channel passes under Pameacha Avenue in a 10 foot wide by 9 foot tall culvert.

For the Owner's information and use, the following items are attached:

1. Hydraulic/Hydrologic computations.
2. Existing data and correspondence.

Based upon the visual inspection, the project is in poor condition. The following features could influence the future condition and/or stability of the project:

1. There is significant deterioration of the masonry spillway and left training wall, including irregularities in the crest and downstream face and displacement of many stones.
2. There is seepage from the downstream face of the masonry spillway especially near the right end.
3. There are several large trees and much brush growing from the downstream face of the spillway and from near the right and left spillway training walls.
4. There is erosion of the channel bank across the stream from the spillway.
5. The low-level outlet is not operable.

The owner should retain the services of a registered professional engineer to perform further studies pertaining to the following general recommendations. More specific recommendations made by the engineer should be implemented by the owner.

1. The areas of deteriorated and/or displaced masonry on the spillway and training walls should be repaired or replaced.
2. The seepage through the dam should be investigated. Measures should be undertaken to eliminate the seepage, or a seepage monitoring program should be established.
3. The trees and brush growing from the dam and from within 10 feet of the dam should be removed. This should include removal of root systems and proper backfilling.
4. The channel bank across the stream from the spillway should be protected against erosion.
5. The low-level outlet should be made operable or a new one installed in order to draw down the pond level, should the need occur.

MT #
15 APRIL 1963
WPS

ON 9-12-3101 CLASS C
LH + 41-32.9 13

STATE BOARD FOR THE SUPERVISION OF DAMS
INVENTORY DATA

CT-145

Name of Dam or Pond PAMEACHA POND

Code No. C 275 SB 0.8 LH 0.4

Location of Structure?

Town MIDDLETOWN

Name of Stream LONG HILL BROOK

U.S.G.S. Quad. MIDDLETOWN

Owner WILCOX - CRITTENDEN NORTH + JUD

Address MIDDLETOWN GULF WESTERN PROTECTION ENGINEERING
CITY OF MIDDLETOWN HIGHWAY RD.
STURMFOID ok 7/73
DA 463514

Pond Used For OVERFLOW FROM POND IS USED FOR PROCESS WATER IN PLA

Dimensions of Pond: Width 400 FEET Length 2700 FEET Area 25^{2.5-5} ACRES

Total Length of Dam 200 FEET Length of Spillway 100 FEET

Depth of Water Below Spillway Level (Downstream) 10 FEET

Height of Abutments Above Spillway 3-4 FEET

Type of Spillway Construction ROCK

Type of Dike Construction EARTH - ROAD

Downstream Conditions WILCOX - CRITTENDEN FACTORY

Summary of File Data

Remarks OVERFLOW FROM POND RUNS THROUGH THE WILCOX - CRITTENDEN
FACTORY. FAILURE OF THIS DAM WOULD CAUSE DAMAGE

DOWNSTREAM. THE DAM SHOULD BE INSPECTED BY A

BOARD MEMBER.

Built 1870?

JOHN J. MOZZOCHI AND ASSOCIATES
CIVIL ENGINEERS

GLASTONBURY, CONN.
217 HERRON AVENUE
PHONE MEDFORD 3-9401

PROVIDENCE 3, R. I.
800 DYER STREET
PHONE GASPEE 1-0420

JOHN J. MOZZOCHI

ASSOCIATES

OWEN J. WHITE
JOHN LUCHS, JR.
ECTOR L. GIOVANNINI

July 17, 1963

REPLY TO: Glastonbury
Our File No. 57-73-52

William P. Sanders-Engineer-Geologist
Water Resources Commission
State Office Building
Hartford 15, Connecticut

Re: Pameacha Pond
Code No. C 27.5 SB 0.8 LH 0.4
Middletown, Connecticut

Dear Mr. Sanders:

In accordance with your instructions of July 8, 1963, I made an inspection of the referenced dam on July 15th, and have the following to report:

The dam is leaking through the stone facing at four places at such a rate that the whole discharge is occurring without any flow over the spillway. These leaks are substantial in size with the one at the northeast corner of the dam being the most serious.

I recommend that immediate action on repairs be requested of the owner.

Very truly yours,

[Signature]
John J. Mozzochi and Associates
Civil Engineers

JJM:hk

7-23-63
State Water Resources Commission
RECEIVED
JUL 18 1963
ANSW. R.D.
REFERRED
FILED

[Handwritten notes and signatures]

August 27, 1968

North and Judd Manufacturing Company
- South Main Street
Middletown, Connecticut

Gentlemen:

According to the records in this office, you are the owner of the so-called Pameucha Pond Dam in the Town of Middletown.

This dam has been inspected by a registered civil engineer and found to be in need of immediate repair. Specifically, the dam is leaking through the stone facing at four places at such a rate that the whole discharge is occurring without any flow over the spillway. These leaks are substantial in size with the one at the northeast corner of the dam being the most serious.

This condition represents a hazard to downstream life and property. You are hereby requested to notify this office within two weeks what steps you plan to take to repair the dam and that repairs be completed within four months. If suitable repairs are not made, more formal action by the Water Resources Commission will be necessary.

Very truly yours,

William P. Sander
Engineer - Geologist

WPS:dip

September 11, 1963

File

William P. Sander, Engineer - Geologist

Panacha Pond Dam - Middletown

Received a telephone call from Mr. Herman Frank of North and Judl Manufacturing Company inquiring about my letter of August 27, 1963.

I suggested he contact Mr. Morzochi about the best way to repair the dam. I also reminded Mr. Frank of the need to obtain a construction permit prior to any repairs on the dam.

William P. Sander
Engineer - Geologist

WPS:dip



NORTH & JUDD MANUFACTURING CO.

Anchor Brand **HARDWARE PRODUCTS**

W. H. JUDD, JR.
SECRETARY

EXECUTIVE OFFICES
NEW BRITAIN - CONN.
THE HARDWARE CITY OF THE WORLD

September 16, 1963

State of Connecticut
Water Resources Commission
State Office Building
Hartford 15, Connecticut

Attention Mr. William P. Sander
Engineer - Geologist

STATE WATER RESOURCES COMMISSION RECEIVED SEP 17 1963	
ANSWERED
REVENUED
FILED

Gentlemen:

We have your letter pertaining to the dam at Pameacha Pond in the Town of Middletown. We have had a preliminary survey made of the dam and are awaiting a report as to the approximate cost for repairing it. However, before we can give you a definite answer as to what course of action the Company will take, it will be necessary to present this to the Management Committee of the Board of Directors of the Corporation at their next meeting sometime during the latter part of September.

In the event it is decided to remove the dam, will it be necessary for us to secure permission from your commission?

Very truly yours,

WHJ:gb

September 17, 1933

Mr. W. H. Judd, Jr., Secretary
North and Judd Manufacturing Company
New Britain, Connecticut

Dear Mr. Judd:

Thank you for your letter of September 16 regarding the dam at Pameacha Pond in Middletown.

State law places under the jurisdiction of this Commission all dams, "which, by breaking away or otherwise, might endanger life or property" The Pameacha Pond Dam falls into this category and for this reason it will be necessary to obtain a permit from this Commission whether you decide to repair the dam or whether you elect to remove it.

We will appreciate being advised of the decision reached at the Management Committee of the Board of Directors at the meeting to be held later this month.

Very truly yours,

William F. Sanders
Engineer - Geologist

WFS:dlp

EXECUTIVE OFFICES
NEW BRITAIN • CONN.
THE HARDWARE CITY OF THE WORLD

October 7, 1963

State of Connecticut
Water Resources Commission
State Office Building
Hartford 15, Connecticut

Attention Mr. William P. Sander, Engineer - Geologist

STATE WATER RESOURCES
COMMISSION
RECEIVED
OCT 6 1963

ANSWERED.....
REFERRED.....
FILED.....

Gentlemen:

Pameacha Pond Dam

We are presently negotiating with the Town of Middletown concerning the gift of Pameacha Pond to the town for recreational purposes. If the offer is accepted, it will be with the understanding that the city will assume any responsibilities insofar as repair of the dam is concerned.

In the event the city is not interested in the pond, it is our present intention to drain the pond rather than maintain it.

Very truly yours,

very truly yours,

WHJ:gb



NORTH & JUDD MANUFACTURING CO.

Anchor Brand **HARDWARE PRODUCTS**

W. H. JUDD, JR.
SECRETARY

EXECUTIVE OFFICES
NEW BRITAIN, CONN.
THE HARDWARE CITY OF THE WORLD

December 11, 1963

State of Connecticut
Water Resources Commission
State Office Building
Hartford 15, Connecticut

Attention Mr. William P. Sander, Engineer

Re: Pameacha Pond Dam

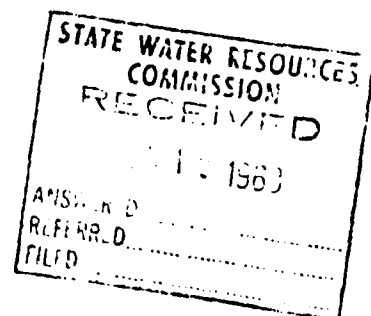
Gentlemen:

We have been advised that the City of Middletown has accepted our offer of Pameacha Pond and has agreed to assume the obligation for maintenance and repair of the dam.

Delivery of the deed to the City of Middletown took place on December 10.

Very truly yours,

WHJ:gb



INTERDEPARTMENT MAIL

DATE 7
May 8, 1969

TO	C. J. Pelletier, Division Engineer		DEPARTMENT	Water Resources	
FROM	W. P. Sander, Engineer-Geologist		DEPARTMENT	Water Resources	EXT.
SUBJECT	Middletown-Pameacha Pond Dam				

An inspection of the subject dam was made on the above date.

This dam was inspected by John J. Mozzochi on July 15, 1963 at which time he advised the following: "I recommend that immediate action on repairs be requested of the owner."

The inspection today showed no evidence of the leakage noted by Mozzochi in 1963. However, there was flow over the spillway which may have obscured leakage. There was no evidence of the dam having been repaired but the possibility exists that the 1963 leaks have become silted up.

It would be my recommendation that the dam be reinspected by an engineer so that the file will show that the dam as it exists today is not in a hazardous condition.

W. P. Sander

Engineer-Geologist

tvm

May 8, 1969

C. J. Pelletier, Division Engineer

Water Resources

W. P. Sander, Engineer-Geologist

Water Resources

Middletown-Pameacha Pond Dam

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Engineer-Geologist

tvm

Cahn Engineers Inc.

Consulting Engineers

Project INSPECTION OF NON-FEDERAL DAMS IN NED STATE Sheet D-1 of A
Computed By WJ Checked By GRB Date 7/24/80
Field Book Ref. _____ Other Refs. CE# 27-785-NA Revisions _____

HYDROLOGIC / HYDRAULIC INSPECTION

PAMEACHA POND DAM, MIDDLETOWN, CT.

1) PERFORMANCE AT PEAK FLOOD CONDITIONS:

1) PROBABLE MAXIMUM FLOOD (PMF)

a) WATERSHED CLASSIFIED AS "ROLLING"

b) WATERSHED AREA D.A. = 4.39 sq mi

NOTE: D.A. FROM CONN. DEP BULLETIN N°1, 1972 (SIXTYSEVEN OF NATURE: DRAINAGE AREAS) p. 39

c) PEAK FLOODS (FROM NED-ACE GUIDELINES - END CURVES FOR PMF)

i) FROM GUIDE CURVES: $CSM = 1900 \text{ cfs/mi}$

ii) $PMF = 1900 \times 4.39 = \underline{8300} \text{ cfs}$

iii) $\frac{1}{2} PMF = \underline{4150} \text{ cfs}$

2) SURCHARGE AT PEAK INFLOWS (PMF & $\frac{1}{2}$ PMF)

a) OUTFLOW RATING CURVE

c) SPILLWAY AND OUTFLOW PROFILE FOR SURCHARGES OVERTOPPING THE DAM:

SPILLWAY (?) 17' LONG, WITH VERY ROUGH CREST (BROKEN CONCRETE) WITH VARIATIONS IN ELEVATION OF UP TO 1'. BROKEN LEFT SIDE WALL (STEPED) NOW SLOPING APPROX. ON (?) 7.5" TO 2" SLOPE. STONE MASURRY & CONCRETE DAM. (SEE OUTFLOW PROFILE p. D-2).

Cahn Engineers Inc.

Consulting Engineers

Project NON-FEDERAL DAM INSPECTION

Sheet D-2 of 4

Computed By WJL

Checked By GRB

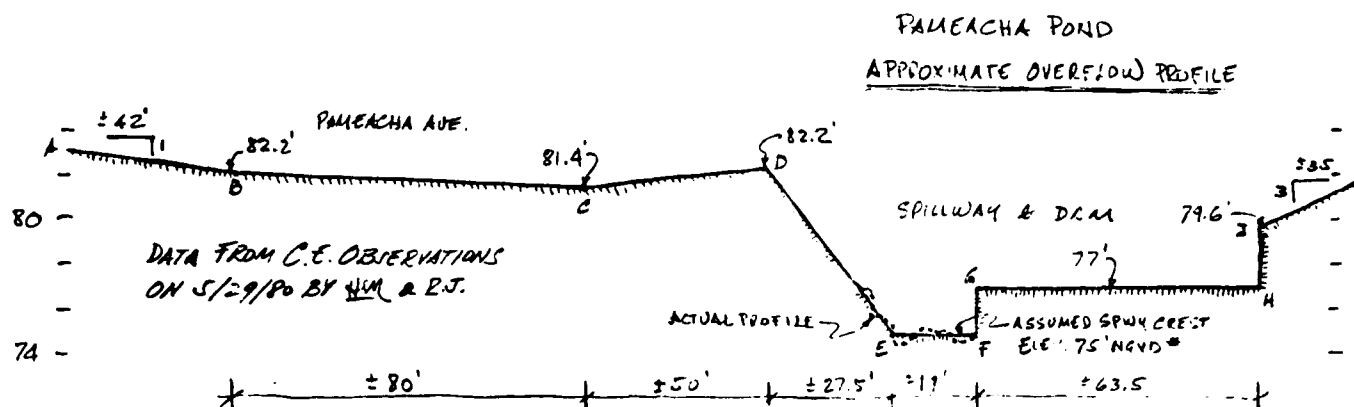
Date 7/20/50

Field Book Ref. _____

Other Refs. CE-21-785-HA

Revisions _____

ASSUME $C=2.5$ FOR THE ENTIRE OVERFLOW SECTION.



*NOTE: W.S. ELEV. 75' NSL ON THE USGS MIDDLETOWN, CT QUADRANGLE SHEET (REV. 1972) IS ASSUMED TO BE THE AVERAGE SPILLWAY CREST ELEVATION ON NATIONAL GEODETIC VERTICAL DATUM.

(i) THE OVERFLOW RATING CURVE CAN BE APPROXIMATED BY THE EQUATION:**

$$Q = 47.5 H^{3/2} + 159 (H-2)^{3/2} + 3.82 H^{5/2} + 11.7 (H-4.6)^{5/2} + 163 (H-6.4)^{5/2} - 124 (H-7.2)$$

THE CORRESPONDING OVERFLOW RATING CURVE IS PLOTTED ON P. D-3.

b) SURCHARGE HEIGHTS TO PASS PEAK INFLOWS (Q_p & Q_p')

i) @ $Q_p = PMF = 8300 \text{ cfs}$ $H_s \approx 9.6'$

ii) @ $Q_p' = 1/2 PMF = 4150 \text{ cfs}$ $H_s' \approx 7.6'$

**NOTE: FLOW OVER SLOPED SECTIONS BY APPLICATION OF FORMULA GIVEN BY THE USGS ON "MEASUREMENT OF PEAK DISCHARGE AT DAMS BY INDIRECT METHODS" BY H. HUSUNG (APPLICATIONS OF HYDRAULIC ENGINEERING)

$$Q = \frac{2Cb}{5(h_s - h_o)} \left[h_s^{5/2} - h_o^{5/2} \right] \text{ WHERE: } Q = \text{DISCH.}; C = \text{DISCH. COEFF.}; b = \text{LENGTH}; h_o \text{ \& } h_s = \text{ST. TIL. ... REFERRED TO HIGH \& LOW ENDS OF WEIR, RESPECTIV.}$$

Cahn Engineers Inc.

Consulting Engineers

Project NON-FEDERAL DAMS INSPECTION

Sheet D-3 of 4

Computed By MM

Checked By GRB

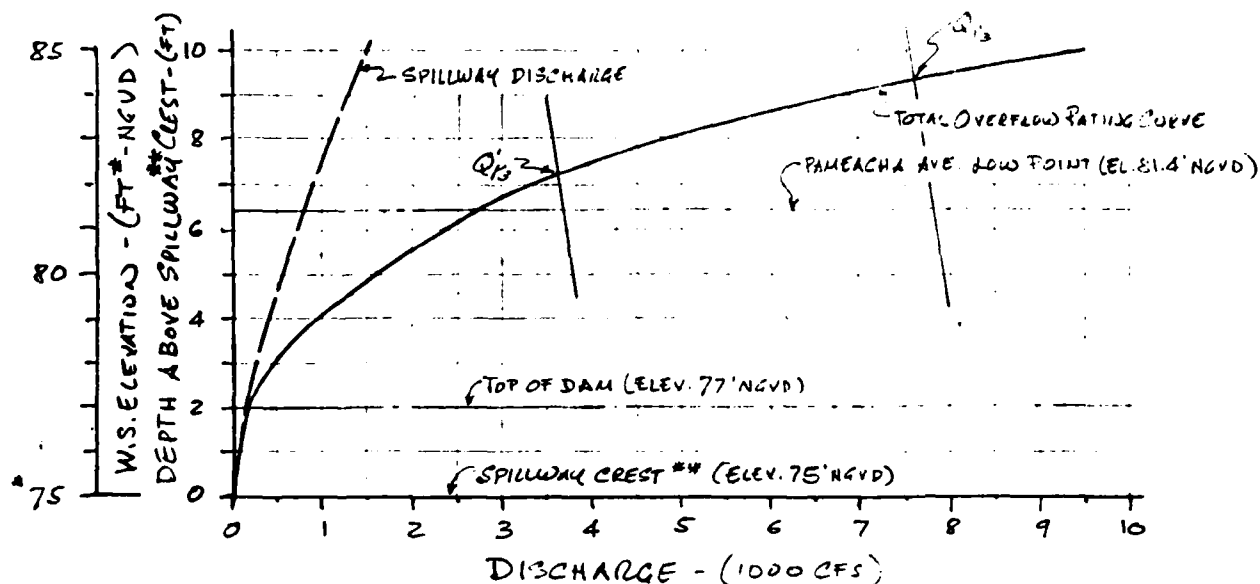
Date 7/26/80

Field Book Ref. _____

Other Refs. CE #27-785-HA

Revisions _____

III) PAMECHA POND DAM - OVERFLOW RATING CURVE



*SEE NOTE ON ELEVATIONS 'P. D-3

** ASSUMED AVE. SPILLWAY CREST ELEVATION

C) EFFECT OF SURCHARGE STORAGE - PEAK OUTFLOWS

i) AVE LAKE AREA (\bar{A}) WITHIN EXPECTED SURCHARGE

1') LAKE AREA AT FLOW LINE (EL. 75' NGVD)*:

$$A_{WL} = 18.4^{ac}$$

2') AREA AT CONTOUR 80' NGVD (M.C.)*:

$$A_{80} = 39.5^{ac}$$

3') AREA AT CONTOUR 90' NGVD (M.C.)*:

$$A_{90} = 90.0^{ac}$$

\therefore AVE AREA WITHIN EXPECTED SURCHARGE 12' 9'

$$\bar{A} \approx 39^{ac}$$

*NOTE: AREAS FROM USGS, MIDDLETOWN, CT. QUAD. SHEET - SERIES 1-2000'

ii) ASSUME NORMAL POOL AT FLOW LINE, ELEV. 75' NGVD

iii) WATERSHED D.A. ≈ 4.39 mi^2

Cahn Engineers Inc.

Consulting Engineers

Project NON-FEDERAL DAMS - INSPECTION Sheet D-0 of 4
Computed By HLL Checked By GRB Date 7/23/80
Field Book Ref. _____ Other Refs. CE#27-785-HA Revisions _____

10) PEAK OUTFLOWS (Q_P) & (Q'_P)

(DETERMINED ON THE OUTFLOW RATING CURVE P. D-3, BY USING THE
APPROX. ROUTING NED-ACE GUIDELINES "SURCHARGE STORAGE ROUTING"
ALTERNATE METHOD AND 19" MAX. PROBABLE P.O. IN NEW ENGLAND).

$$Q_P \approx 7600 \text{ CFS} \quad H_3 = 9.3' \text{ (ELEV. 84.3' NGVD)}$$

$$Q'_P \approx 3600 \text{ CFS} \quad H'_3 = 7.3' \text{ (ELEV. 82.3' NGVD)}$$

3) SPILLWAY CAPACITY RATIO TO PEAK OUTFLOWS:

SPILLWAY CAPACITY TO:	SURCH* H. (FT)	W.S. ELEV. (FT-NGVD)	SPILLWAY CAPACITY (CFS)	SPILLWAY CAPACITY AS % OF PEAK OUTFLOWS	
				Q_P (7600 CFS)	Q'_P (3600 CFS)
TOP OF DAM	2.0	77	130	1.7	3.6
PANTACHA AVE. LOW POINT	6.4	81.4	770	10	21
1/2 PHF	7.3	82.3	940	—	26
PHF	9.3	84.3	1350	18	—

*SURCHARGE ABOVE THE ASSUMED AVERAGE SPILLWAY CREST ELEVATION



CT-145 PAMEACHA DAM

